Timeout State **1362**. At this point, the base station will continue to examine the status of the mobile stations. The base station global searcher control sends a Ready Notification Message to the oldest active idle mobile station (Step **1364**). That mobile station's User ID is then revoked via a User ID Deassignment Message sent on the Packet/Paging Channel (Step **1368**), and a User ID notification signal is generated by the global searcher control for the next waiting mobile (Step **1370**). The Wait List Flag is then examined (Step **1372**). If the Wait List Flag is FALSE, meaning the mobile station is on the Wait List, the base station goes to the Idle State **1354**. If the Wait List Flag is TRUE, however, meaning the mobile is not on the Wait List, the Wait List Flag is reset to FALSE (Step **1374**), and the base station enters the Wait State **1320**.

When the base station is in the Idle Timeout State **1362**, if the assignment time of a mobile is exceeded (Step **1376**), meaning the mobile has had its User ID for too long, the base station enters the Assignment Timeout State **1346**. Moreover, when in the Idle Timeout State **1362**, the global searcher control generates Data Tx/Rx Notification Messages (Step **1378**) that cause the Idle Timer to be reset and the Wait List Flag to be set to TRUE (Step **1380**), indicating that the mobile station is not on the Wait List. The base station the enters the Active State **1316**.

With reference to FIG. **13E**, the base station Assignment Timeout State **1346** will be described. The base station may send a Ready Notification Message to its global searcher control (Step **1382**), indicating that the oldest active assigned mobile station is about to have its searcher reservation revoked. The base station then revokes that mobile station's User ID by sending a User ID Deassignment Message to the mobile on the Packet/Paging Channel (Step **1386**), and a User ID Notification Message is sent by the global searcher control to the next waiting mobile (Step **1388**). The Wait List Flag is then examined (Step **1390**). If the Wait List Flag is FALSE, the base station enters the Idle State **1354**. If the Wait List Flag is TRUE, the Wait List Flag is reset to FALSE (Step **1392**), and the base station returns to the Wait State **1320**.

Further, in the Assignment Timeout State **1346**, the global searcher control generates a Data Tx/Rx Notification Message (Step **1394**) when a mobile is transmitting or receiving data. The Wait List Flag is then set to TRUE (Step **1396**), and the base station returns to the Assignment Timeout State **1346**.

D. Mobile Station Location

When a base station has packet data to transmit to a mobile station, two basic methods may be used to deliver the packet data: (1) The base station may rely on IS-95 registration methods to locate the mobile station. With this method, the base station can either page the mobile station to determine its current cell/sector location before transmitting the packet data, or can simply transmit the packet data throughout the location area of the mobile. (2) The base station may require the mobile station to transmit a Packet/Paging Channel Request Message after every idle handoff, thereby providing exact location information (to the cell/sector) for the mobile at all times.

The first of these methods minimizes the Access Channel traffic generated by the mobile station, at the cost of an increase in Paging Subchannel traffic and a possible delay in packet delivery. The first method may be a desirable method for high-mobility mobile stations. The second method minimizes delay for most packets at the cost of increased Access Channel traffic. It may be the best approach for low-mobility mobile stations.

When using the first method, the base station sets the LOCATION_CTRL field (described above) in a Packet/Paging Channel Overhead Message to "0". The mobile then performs only IS-95 registration as a means of location and packet delivery.

When using the second method, the base station sets the LOCATION_CTRL field in the Packet/Paging Channel Overhead Message to "1". The mobile station sends a Packet/Paging Channel Request Message after every idle handoff. The mobile station also performs IS-95 registration, as required according to the normal IS-95 procedures.

E. Traffic Channel Management

While packet data services are in progress, a mobile station can commence or end operation on a CDMA Traffic Channel at any time. This is done by using the channel assignment, channel release, and related procedures defined in TIA/EIA/IS-95. Herein, reference will be made to the CDMA Traffic Channel. It is to be understood, however, that in general it is preferable to use a dedicated charmel to send transmissions that exceed the bandwidth of the random access channel (e.g., non-bursty, lengthy, or continuous transmissions) between the base station and mobile station. The Traffic Channel referenced in the remainder of this section is merely an exemplary dedicated channel. This section describes the process for switching or transitioning between a dedicated channel (or Traffic Channel) and the random access channel of the present invention when conditions dictate that a transition is beneficial. For convenience, the dedicated channel will be described with specific reference to the Traffic Channel. This process was described above in less detail with respect to FIG. **3**.

Either the base station or mobile station may initiate the Traffic Channel assignment process. A mobile station initiates the Traffic Channel assignment process by sending an IS-95 *Origination Message* on either the access Channel or Reverse Packet Channel. A base station can initiate a Traffic Channel assignment by directly assigning a Traffic Channel, or by sending a *Page Message* to the mobile station prior to the assignment.

The base station uses the following procedure to determine when to initiate transitions between the Packet/Paging Channel and Traffic Channels:

(1) If, over a period of time, packet data sent to a mobile or received from a mobile station exceed a predetermined threshold level, the base station assigns the mobile station to a CDMA Traffic Channel. This procedure addresses the problem that packet data usage may exceed the capacity of the Packet/Paging Channel or the Reverse Packet Channel under circumstances where users transfer large amounts of data, or carry out an extended session with frequent exchanges of data packets.

(2) If the mobile station user or the base station sets up a second call appearance (e.g., a voice call simultaneous with packet data service) where a Traffic Channel is necessary to carry the new call appearance, the base station assigns the mobile station to a CDMA Traffic Channel.

(3) If the mobile station is in motion and undergoes a rapid succession of handoffs or signal fades, the base station assigns the mobile station to a CDMA Traffic Channel. It will be advantageous to use a Traffic Channel under such circumstances so that connectivity is maintained (e.g., using the soft handoff feature of CDMA cellular) without excessive Access Channel activity to re-establish Packet/Paging Channel assignments.

(4) When a mobile station's Traffic Channel utilization falls below a configured level, the base station releases